

INTRA-INDUSTRY INFORMATION DIFFUSION IN CHINA STOCK MARKET

By

DONG CHI

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PENYEBARAN MAKLUMAT INTRA-INDUSTRI DI PASARAN SAHAM CHINA

ABSTRAK

Di bawah andaian Hipotesis Pasaran Cepak (EMH), harga saham secara keseluruhannya mencerminkan kesemua maklumat yang ada. Oleh itu, maklumat tersebar dengan serta-merta dalam pasaran yang sempurna dan tidak terhalang. Walau bagaimanapun, beberapa halangan akan wujud dalam proses penyebaran maklumat dalam pasaran kewangan. Penyebaran maklumat boleh disebabkan oleh pelbagai faktor. Dengan memberikan penumpuan kepada intra-industri, fokus utama kajian ini adalah kepada penyiasatan terhadap proses penyebaran maklumat di pasaran saham China. Prosedur panel dan auto-regresi vektor bersyarat digunakan untuk mengesan penyebaran maklumat intra-industri. Kajian ini menggunakan 1175 firma dari tujuh industri dari tempoh 2002 hingga 2013. Berdasarkan kepada tujuh sampel industri, menggunakan penyiasatan data siri-masa dan auto-regresi vektor, kajian ini meneroka kesan penentu dalaman dan luaran terhadap penyebaran maklumat di pasaran saham China. Kajian mendapati bahawa penentu dalaman penyebaran maklumat intra-industri iaitu saiz, jumlah dagangan dan nisbah buku-pasaran (B/M), mempunyai kesan terhadap penyebaran maklumat intra-industri. Firma bersaiz besar dan firma dengan dagangan tinggi, bersama-sama dengan firma yang mempunyai B/M yang tinggi mempunyai kelajuan yang lebih tinggi dalam penyebaran maklumat di pasaran saham China. Sementara itu, sebagai penentu

luaran kepada penyebaran maklumat, keadaan pasaran juga akan memberikan kesan kepada proses penyebaran maklumat intra-industri. Tidak kira samada horizon keadaan pasaran yang lebih pendek atau lebih panjang, dapatan menunjukkan bahawa ada lebih banyak halangan dalam penyebaran maklumat berlaku apabila pasaran jatuh. Dapatan juga mencadangkan kelajuan penyebaran maklumat ketika pasaran jatuh menjadi lebih perlahan berbanding apabila pasaran menaik. Sebaliknya, ketika pasaran berubah menaik, kelajuan penyebaran maklumat bertambah laju. Di samping itu, kajian ini juga mendapati bahawa perubahan polisi, sebagai satu lagi penentu luaran, juga mempengaruhi penyebaran maklumat intra-industri di pasaran saham China. Secara spesifik, perubahan polisi di pasaran saham China didapati menghalang proses penyebaran maklumat. Dengan perubahan polisi di pasaran saham China, kelajuan penyebaran maklumat di antara saham firma besar dan firma kecil menurun. Maka, perubahan polisi di China didapati kurang berkesan ke tahap tertentu. Walau bagaimana pun, penurunan kemeruapan penyebaran maklumat secara berterusan juga dapat dilihat di pasaran saham China. Dapatan ini memberikan implikasi bahawa perubahan polisi mempunyai kebaikan di aspek lain.

INTRA-INDUSTRY INFORMATION DIFFUSION IN CHINA STOCK MARKET

ABSTRACT

Under the assumption of Efficient Market Hypothesis (EMH), stock prices completely reflect all commonly available information. Consequently, information instantly diffuses in a complete and frictionless market. However, a few frictions usually appear on the process of information diffusion in real financial market. Information diffusion might be affected by various kinds of factors. Concentrating on intra-industry, the central focus of the study is the systematic investigation of information diffusion in China stock market. The panel and conditional vector auto-regression procedures are employed to detect the intra-industry information diffusion. This study uses 1175 companies from seven industries for the period of 2002 to 2013. Based on seven sample industries, including time-series data and panel data investigations, the study explores the impacts of internal and external determinants on the intra-industry information diffusion in China stock market. The study discovers the internal determinants of intra-industry information diffusion, namely firm size, trading volume and book/market (BM) ratio, to have an effect on the process of information diffusion. Big firms and high trading volume firms as well as high BM ratio firms usually have faster speed of intra-industry information diffusion in China stock market. Meanwhile, as the external determinant of information diffusion, the market conditions also could affect the process of

intra-industry information diffusion. Regardless of shorter and longer horizons of market condition, the results display there are more obstacles in the process of intra-industry information diffusion when the market falls off. The results further suggest the speed of intra-industry information diffusion in down market becomes slower than that in up market. On the contrary, when the market is turning upward, the speed of intra-industry information diffusion turns faster. Furthermore, the study also discovers policy change, as another external determinant, could influence the process of intra-industry information diffusion in China stock market. Specifically, policy changes in China stock market are found to impede the process of intra-industry information diffusion. Along with policy changes of China stock market, the speed of intra-industry information diffusion between big and small stocks declines. Therefore, policy changes in China stock market seem ineffective to some degree. However, continuously decreasing information volatility of intra-industry information diffusion is also noticeable in China stock market. The results imply policy changes are useful from other aspect.

CHAPTER 1

INTRODUCTION

1.1 Research Background

Information is important to make decisions, especially in stock market. People attempt to rely on various kinds of information to predict the stock prices and discover the opportunities of arbitrage. However, investors confront too much information that concerns macroeconomic and industries as well as specific firms. Identifying and choosing information is not an easy task. Informed investors have better investing performance because of more sufficient information and faster response to information. Effective and timely information is plausible to be a magic key for successful investment.

1.1.1 Efficient Markets Hypothesis and Information

One very important theory in finance which is based on information is the Efficient Market Hypothesis (EMH), proposed by Fama (1965). EMH presents stock prices completely reflect all common information at any given time, and arbitrage from information is unrealized. Therefore, no investment policy can produce an average return that surpasses the required compensation for risk. When news comes, the new information will be transmitted very quickly and finally incorporated into the stock prices with no break and delay. EMH maintains price changes are random and unpredictable as new information arrives at the market randomly.

Additionally, Fama (1970) argues that EMH depends on rational manner of

investors. Investors' behaviors are supposed to be random and rational. Investors estimate stocks based on their fundamental values. Consequently, they rapidly react to new information about stocks' fundamental values. Stock prices will be pushed up or down by investors of buying or selling, when the news is good or bad. Accordingly, when new information comes, dissemination of information is smooth. There is not any obstacle on process of information diffusion in efficient market. As a result, no abnormal profits can be earned from information-based trading.

Sewell (2011) who analyzes historical papers about EMH, finds that only under half of the papers support market efficiency. The assumption of EMH seemingly does not hold for most investors. Irrational behaviors and restricted cognitive reserves could prevent investors from instantly handling all common information (e.g., Shleifer, 2003). Merton (1987) reports the investors just pay attention to a small amount of stocks and operate stocks that they possess information about. Even if new information is obtainable in public, it cannot be included into prices until investors take notice of it. Therefore, in realistic life, information cannot instantaneously be incorporated into all stock prices.

1.1.2 The Process of Information Diffusion

Lo & MacKinlay (1990) first systematically discuss the process of information diffusion. While testing the stock returns' contrarian strategies in U.S. market, Lo & MacKinlay (1990) discover the positive cross-autocorrelation between big firms' returns and small firms' returns. They find that the big firms' lagged returns are

associated with small firms' current returns, but not vice versa. Excluding that possibility of nonsynchronous trading, they argue the source of this pattern of cross-autocorrelation in return is the gradual market-wide information diffusion. They further discuss the procedure of information diffusion between small and big firms. According to their description, when new information comes, the responses of small firms have a delay, thus, market-wide information diffuses slowly from big firms to small firms.

Not a few researches gradually enrich the explanations of the process of information diffusion from various aspects. Chan et al. (1993) highlight the role of availability of information in explaining information diffusion. They argue, due to investors' care for large stocks, more information and analysis about large stocks are produced. Thus, they discuss formation about large stocks is more available. They suggest large firms have faster speed of information adjustment because of high information availability. Balsara et al. (2006) explain that the process of information diffusion is a function of information distribution and absorption. Based on their report, distribution is a function of observable issues such as volume and price fluctuation, absorption is reliant on unobservable factors for instance the value and dependability of information. Pan & Poteshman (2006) argue that option markets have fast speed of information diffusion than that in stock market. They maintain common information could disseminate gradually from option markets to stock markets, especially when option volume can forecast the changes of stock price. Focusing on investors' attention, Hou et al. (2009) discuss, when investors take no

notice of a firm, they are more likely to disregard the information about this firm. They suggest information gradually diffuses among stocks based on varying degree of investors' attention. Rizova (2012) discusses the process of information diffusion among different stock markets in trade-linked countries. He argues one country's stock market does not respond instantly and completely to the partners' stock market movements. In addition, he suggests stock market returns of a country's main business associates could predict the following stock market return of that country.

Moreover, excluding U.S. stock market, plentiful literatures further investigate the process of information diffusion from other markets. For example, on different European stock markets, Mills & Jordanov (2001) and Atlay (2003) separately examine the process of information diffusion on the London, German and Turkish stock markets. Having similar results, they discover that the speed of price adjustment of small firms to market-wide information is more sluggish than that on big firms. Hameed & Kusnadi (2006) examine the process of information diffusion in Japan stock market. They report large firms possess relatively faster speed of information diffusion in this process. Some literatures also focus on the process of information diffusion in emerging markets. For instance, Sjöo & Zhang (2000) show Stock Exchange is more significant than firm size to information diffusion in China stock market. They present Shanghai Stock Exchange has more high liquidity and Shenzhen Stock Exchange possesses relative low liquidity. Thus, they argue information diffuses from foreign investors to domestic investors in Shanghai Stock Exchange, whereas information diffuses from domestic investors to foreign investors

in Shenzhen Stock Exchange. Focusing on size and volume, Gebka (2008) discusses the process of information diffusion on the Warsaw market. He argues that small or low trading volume portfolios have slower speed of price response to market-wide information than large or high trading volume portfolios. Prasanna & Menon (2012) analyze speeds of stock price response in Indian Stock market. They further argue high volume stocks react faster to information than low trading volume stocks.

1.1.3 Internal Determinants of the Process of Information Diffusion

Furthermore, more academic attention progressively explores the determinants of the process of information diffusion. Focusing on specific characteristics of firms, a few literatures gradually discover internal determinants of process of information diffusion. Lo & MacKinlay (1990) first emphasize firm size is important determinant of the process of information diffusion. They argue market-wide information slowly diffuses from big firms to small firms. Doukas and McKnight (2005) further suggest investors usually are not familiar with small stocks, and thus small stocks have a lesser investor foundation. They maintain small firms experience slower information diffusion. In other ways, Brennan et al. (1993) argue higher level of analyst coverage can increase the respond speed of the stock's price to information. They claim firms with lower level of analyst coverage possess slower speeds of information diffusion. Badrinath et al. (1995) discuss that institutional ownership also performs a significant function on information diffusion. They find more institutional ownership means added attention from institutional investors. Thus, higher level of institutional

ownership generates faster speed of information diffusion. Chordia & Swaminathan (2000) discover trading volume plays a significant role on speed of information diffusion. They suggest high trading volume firms react faster to market-wide information than low trading volume firms. Brennan et al. (1998) argue B/M ratio also distinctly affect speed of information diffusion. They claim firms with higher BM ratio possess slower speed of information diffusion.

1.1.4 External Determinants of the Process of Information Diffusion

The impacts of firm's characteristics on the process of information diffusion have been contributed by many past studies. Additionally, some external factors that could affect the process of information diffusion have also been explored. Two external determinants that can affect information diffusion are market condition and policy changes. A few literatures gradually focus on market condition to explore information diffusion. For example, McQueen et al. (1996) suggest, by reason of the small stocks' lagged response in up market, the cross autocorrelation relation is more significant in up market rather than down markets. Contradicting to McQueen et al. (1996), Atlay (2003) argue information diffuses more slowly when market condition becomes down. Hameed & Kusnadi (2006) discuss the speed of information diffusion is supposed to be slower when the market falls off. They also discover higher trading activity when market condition indicates up market, implying a quicker speed of information dissemination.

Another external determinant is policy changes. As the important setting of market environment, policy changes of government have significant impacts to stock market on various aspects. Market environment and institutional arrangement could be responsible for the speed of information diffusion. Merton (1987) recognizes the importance of institutional constraints in the information achievement and diffusion procedure. On empirical aspects, Chiao et al. (2004) argue the speed of information diffusion on big stocks is not always faster than that on small stocks. They suggest the policy environment of Taiwan stock market is different from other developed markets, and the unique policy environment of Taiwan stock market is the reasons of these result. Hou & Moskowitz (2005) discuss, including policy environment, market frictions could affect stock prices respond to new information.

Furthermore, Hou (2007) argues more work should focus on evaluating and differentiating the influence of various market resistances and institutional restrictions on the process of information diffusion. Theoretically and empirically, a few researches gradually explore the importance of a variety of policy and environmental changes. Concentrating on policy changes to investigate the stock market becomes one of recent research hotspots. Qiao et al. (2008) examine policy changes influence the process of information diffusion among China segmented stock markets. They claim policy impacts are significant to the process of information diffusion. Mori (2015) investigates policy changes in the Real Estate Investment Trust market over recent twenty years affect the process of information diffusion among REIT stocks in U.S. He discovers the changes of the process of

information diffusion depend on different government policies.

1.1.5 Industry Factor and Information Diffusion

Most of previous literatures investigate the process of information diffusion based on the whole market. However, narrowing research scope, there are also a few researches examine information diffusion that relate to industry. In theory, an industry denotes a set of firms supplying homogenous products or similar substitutes. Firms within an industry share a lot of commonalities in their fundamental activities. Hou (2007) discusses firms in same industry contend in the produce market and move closely with each other concerning product and technology innovations. He further argues growth opportunities and financing decisions of firms in same industry are interconnected, with the expansions and contractions of the industry. These commonalities bring out information clustering at the industry level.

Furthermore, the relationships among firms are dissimilar, it depends on industries they belong to. There is perhaps little relation between some firms for instance firms in irrelevant industries. While some firms show intimate relationship such as firms in relevant industries or within same industry. Relevant industries contain customer-supplier or upstream-downstream industries and so on. These firms in relevant industries possess close relationship, their products are linked strongly (e.g., complements). Menzly & Ozbas (2006) argue firms in relevant industries are sensitive to each other, thus, information diffusion among these firms are quite different from other firms in irrelevant industries. On the other hand, products of

firms within industry are replaceable or homogenous. Due to competitive relation, firms within same industry are sensitive to each other, and influences among firms are also outstanding (Laopodis, 2016). Therefore, information diffusion among these firms might be different with firms in relevant industries.

Lo & MacKinlay (1990) discuss speed of information diffusion without considering relationships among firms. However, some literatures gradually reflect on relationships among firms to investigate information diffusion. For example, a few literatures analyze information diffusion among relevant industries. Focusing on investors' attention, Hong et al. (2007) examine the process of information diffusion among all industries in U.S. They argue, depending on how much attention that industries receive, different industries have different speeds of information diffusion. Considering customer-supplier industries, Cohen & Frazzini (2008) discover information about economically linked firms is not quickly incorporated into stock prices. They argue the delay degree is more significant, when investor's attention is restricted. From the point of market segmentation, Menzly & Ozbas (2010) also investigate the returns of customer-supplier industries. They argue, due to investor specialization and market segmentation, value-relevant information gradually diffuses across informationally segmented markets.

Most of researches mainly examine the process of information diffusion in the whole market and cross industry. However, researches rarely focus on firms within industry to investigate the process of information diffusion. Hou (2007) examine intra-industry information diffusion in U.S. stock market. He argued gradual

information diffusion mainly exist intra-industry rather than cross industry or outside industry. He suggests industry-wide information rather than market-wide information is more considerable to stock returns within industry. He further discusses large firms and value firms possess relatively faster speed of information diffusion within industry. By analyzing leader and follower within industry, Haque (2011) also further investigates intra-industry information diffusion in Australia stock market.

1.1.6 Policy Changes in China Stock Market

Besides the internal and external determinants of the process of information diffusion as discussed above, policy changes are another potential influence of speed of information diffusion. Policy changes are frequent in China stock market. As emerging market, due to excessive fluctuation of China stock market, China government has to continuously regulate and control market as well as stabilize stock prices. In the last ten years, among lots of policies, two policies are most significant and show greatest impacts to China stock market.

First of all, the split share structure reform happened in 2005. Based on the tradability, the stocks of listed companies can be put into two major classes: tradable stocks and non-tradable stocks. Specifically, non-tradable stocks belong to all levels of government or government-controlled financial institutions. Wu (2012) argues the issuance of the non-tradable stocks in fact increases inefficiency of the China stock market. For example, less tradable stocks can bring about a decrease in liquidity, and is convenient to insider information trading. On the other hand, tradable stocks can

be freely traded by retail investors and institutional investors. All listed companies have many non-tradable shares in varying proportions. Before 2005, non-tradable shares contain about two thirds of the total number of outstanding shares. An excess of non-tradable shares in the stock market bring out lots of problems for the further development of the market. In April 2005, the China Securities Regulatory Commission (CSRC) finally initiated the reform of the non-tradable shares i.e. the split share structure reform, trying to transfer all non-tradable shares into tradable shares. The central focus of the split share structure reform is holders of non-tradable shares are obliged to compensate the holders of tradable shares to obtain the liquidity right for the option to sell their shares in the future.

The potential impacts of the split share structure reform have been discussed by a few empirical literatures. Li et al. (2011) imply the split share structure reform might be most powerful policy reform of China stock market in recent year. Chen et al. (2011) argue the split share structure reform improve the liquidity of market and the market efficiency. Liu & Tian (2012) discover that the split share structure reform reduces the incentive of controlling shareholders to tunnel. Beltratti et al. (2012) discuss that this reform lays down the conditions for essential future changes in ownership, liquidity and corporate governance in China. Additionally, Carpenter et al. (2015) suggest the split share structure reform has only little direct immediate impact on the structure of the China stock market in the short term.

The second important policy is lifting short sale constraints. Before 2010, there are strict short sale constraints in China stock market. Under short sale

constraints, due to ban of law, investors can't freely short sell stocks that they don't hold. Theoretically, short sale constraints could affect the process of information diffusion. Diamond & Verrecchia (1987) maintain that short sale constraints could delay new information to be incorporated into stock prices. Under short sale constraints, negative information has some difficulties in incorporating stock price and diffuses only slowly. In order to improve the process of China financial market marketization, as well as acting on international convention, CSRC finally abolishes short sale constraints of China stock market in 2010. Therefore, after 2010, when short sale constraints disappear, market transactions might have further development room. Chang et al. (2014) report, Chinese investors seem to be unfamiliar with the short sale mechanism, it is deem that many of them choose to keep away from short sale. Karagozoglu & Wang (2013) discuss lifting short sale constraints is more beneficial to institutional investors. Meanwhile, they suggest, due to more demand of potential arbitrage, market volatility is actually increased. However, Zhao et al. (2014) also argue permitting short sale could decrease market volatility and provide more suitable stock return's allocation in China stock market. As a result, China stock market provides appropriate area to investigate the process of information diffusion with or without short sale constraints.

1.2 Motivation

Since the reform and opening up in 1978, China has experienced a fast transformation from planned economy to market economy at the national level. Over

the past three decades, China has gone through impressive economic growth and turns into the world's second largest economy. China became a member of the World Trade Organization (WTO) and was recognized as one of the BRICs by international investment banks (Goldman Sachs) in 2001. Due to fast economic development and enormous growth opportunities in China, as an indispensable part of the Chinese economy, China stock market increasingly attracts domestic and foreign investors' attention.

As an emerging market, China stock market has the second largest trading volume and the second largest market capitalization, which market capitalization is \$ 6.4 trillion in 2014, only after the U.S. China stock market already becomes one of most active markets based on the number of listed companies, the total trading volume, the market capitalization, participation of foreign investors and unique categorization of stocks.etc. Therefore, a considerable amount of investment interest and academic attention around the world concentrate on the China stock market.

Notwithstanding the fast developing and emerging importance of its stock market, the China stock market may suffer from market irrationality like in many developed stock market. Kim & Nofsinger (2008) maintain individual investors in Asians suffer from cognitive biases more than people from Western cultures. Chang et al. (2014) argue, as the most important emerging market, China stock market is known for investors' irrationality. Common Chinese investors show more irrational behavior and possess more restricted attention. According to Kang et al. (2002), most of Chinese individual investors seem to make use of information in confused

condition, due to lack of information processing capacity and channel. They are easy to believe rumors and more like noise traders who entirely speculate in the financial market. As Kang et al. (2002) state, these practice are termed as “stir-frying stocks” in China. Conversely, useful information is usually captured by Chinese institutional investors, they are informed and react faster than individual investors. Meanwhile, without sufficient information and qualified security analyses, Chinese individual investors are mostly unsophisticated and display herding, tending to follow institutional investors. Hence, information generally diffuses from institutional investors to individual investors (e.g., Tan et al., 2008; Piotroski & Wong 2012). Possessing superiority in information acquisition, institution investors are more convenient to manipulate the stock market. Under asymmetric information, insider trading is also more likely take place.

Therefore, smoothing the process of information diffusion will reduce the possibility of insider trading and manipulating the stock market. It is beneficial to common investor and maintaining the market stability. As the emerging market, China stock market is young and full of vitality, as well as immature. Policy considerations and market mechanisms in China should keep pace with the times, which could facilitate that stock prices become more efficient and informative. However, whether policy reforms are effective in China stock market? Whether China government can professionally regular and controls the market? How to smooth the process of information dissemination and increase informativeness of stock price? How do investors make use of information? These problems always

puzzle government authorities and investors. Investigation of the process of intra-industry information diffusion in China stock market, could help understanding and analyzing these problems. Therefore, revolving around intra-industry information diffusion, further systematic investigation and exploration are necessary.

1.3 Problem Statement

EMH argues stock prices at any given time completely reflect all common information. Consequently, information instantaneously diffuses in a complete and frictionless market. However, in stock market, some frictions usually appear on the procedure of information dissemination. The speed of information diffusion might be affected by various kinds of factors.

Plentiful researches gradually explore the determinants of the process of information diffusion. As the internal determinants, characteristics of firms could influence the process of information diffusion, such as firm size, the level of analyst coverage, the level of institutional ownership, trading volume, and book to market ratio etc. Therefore, firms with specific characteristics generally possess distinct speeds of information diffusion. For example, big firms usually are verified having faster speed of information diffusion, however small firms possess slower speed of information diffusion. Consequently, information gradually diffuses among big and small firms.

Furthermore, a few external factors also influence the process of information diffusion. As one of external determinants, market condition could affect speed of

information diffusion. However, which market condition can delay the reaction to information is still controversial (see e.g., McQueen et al., 1996; Atlay, 2003; Hameed & Kusnadi, 2006). Consequently, possibility of future study appears. In addition, as one of recent research hotspots, policy changes have an effect on the process of information diffusion. As the most significant policy changes of China stock market in recent years, the split share structure reform and lifting short sale constraints provide empirical research objects. The study also concentrates on the influences of these major policy changes on the process of information diffusion. As a result, this section could become the highlight of the study.

On the other hand, industry factor plays important roles on stock returns and information diffusion. Not similar with cross industries and the whole market, the relationships among firms within industry are closer. Products of firms within industry are substitutable, as well as competitive relation. Consequently, these firms are more sensitive to each other. As a result, information diffusion among firms within industry might be different with outside industry. However, previous literatures rarely focus on firms within industry to investigate the process of information diffusion. There is still room to investigate intra-industry information diffusion, especially for emerging markets.

Furthermore, previous literatures mostly concentrate on information diffusion among A and B shares (e.g., Sjöö & Zhang, 2000; Qiao et al., 2008) and market-wide information diffusion (e.g., Wang & Xie, 2010; Wu, 2013; Zhang et al., 2016) in China stock market. No literatures focus on intra-industry to investigate information

diffusion in China stock market. Hence, there exists a gap about intra-industry information diffusion in China stock market.

As the largest emerging market, China stock market has unique microstructures and institutional arrangement, which are different with most developed markets. Due to relatively shorter development period, China stock market suffers from market immaturity and investors irrationality. Therefore, China stock market provides adequate study area for the empirical studies.

In sum, the central focus of the study is the systematical investigation of intra-industry information diffusion in China stock market. The study explores the impacts of internal and external determinants on the process of intra-industry information diffusion in China stock market. As potential determinants of intra-industry information diffusion, internal factors contain specific characteristics of firms, while external factors include market conditions and major policy changes in China stock market. Especially, according to specific conditions in China, by exploring major policy changes affect the process of intra-industry information diffusion, the study further discuss the effectiveness and prospective development of the reform in China stock market.

1.4 Research Questions

From the prior description and discussion, the central research question focuses on the process of intra-industry information diffusion in China stock market. Specifically, the research looks for answers to the following questions.

1. Do specific characteristics of firms, namely firm size, trading volume and BM ratio, affect the process of intra-industry information diffusion in China stock market?

2. What are the impacts of market conditions on the process of intra-industry information diffusion in China stock market?

3. What are the impacts of policy changes on the process of intra-industry information diffusion in China stock market?

1.5 Research Objectives

Corresponding to the research questions above, this study aims to:

1. Examine whether specific characteristics of firms, namely firm size, trading volume and BM ratio, affect the process of intra-industry information diffusion in China stock market.

2. Explore the impacts of market conditions on the process of intra-industry information diffusion in China stock market.

3. Investigate the impacts of policy changes on the process of intra-industry information diffusion in China stock market.

1.5 Significance and Contributions of the Study

Based on the previous analyses and explanation about intra-industry information diffusion in China stock market, there are a few theoretical and practical significance and contributions of the study.

Theoretical contributions of the study appear on several aspects. First, the study provides evidences to challenge Efficient Markets Hypothesis (EMH), which claims stock prices completely reflect all common information at any given time and information diffusion take place instantly. The study further contributes to the research about the process of information diffusion. Meanwhile, the study also strengthens comprehension of the procedure by which information is gradually incorporated into firms within industry.

Second, the study builds on the framework of intra-industry to investigate information diffusion. The study not only focuses on individual industries, but also processes a major investigation of intra-industry. Moreover, there is still room to focuses on intra-industry to explore information diffusion, especially for some external impact factors. Including the market conditions and policy changes, the study highlights the role of external determinants on intra-industry information diffusion in China stock market.

Third, concentrating on a series of policy changes to investigate diffusion of information is one of recent research hotspots. According to specific conditions in China, the study focuses whether and how policy changes influence the process of intra-industry information diffusion. Therefore, the study is also the first research in China, which focuses on intra-industry to investigate the process of information diffusion with view of policy changes.

Practical contributions of the study also appear on several aspects. First, institutional frictions are accountable for producing the delay in the process of

information diffusion. Thus, comprehending the process of information diffusion is very important for policy considerations. Institutional reforms in China stock market have been implemented for many years since the establishment of market. However, effectiveness of policy reforms is still in dispute. Based on the split share structure reform and lifting short sale constraints, the study discover policy changes in China stock market impede the process of intra-industry information diffusion and seem ineffective in some degree. On the other hand, due to decreasing information volatility of intra-industry information diffusion, policy reforms of China stock market are acceptable in some degree. Moreover, policy considerations and market mechanisms in China should keep pace with the times, which could facilitate that stock prices develop more effective and informative. Consequently, the study provides evidences to help government authorities smoothing the process of intra-industry information diffusion and augmenting the market efficiency.

Second, the study significantly provides some trading strategies to investors. For example, when the good common information comes to some big firms, investors may choose some high quality small firms from the same industry rather than the whole market. Investors should take long positions in these stocks as early as possible. Moreover, when the market falls off, investors should slow these investment actions. Alternatively, investors might accelerate investment behaviors, as the market turns upward. These trading strategies are also suitable for firms' characteristics of trading volume and B/M ratio.

Third, when it comes to information diffusion in China stock market, most

literatures concentrate on information diffusion between A-share and B-share (e.g., Sjöo & Zhang, 2000; Lin and Swanson, 2008), or information diffusion in the whole market (e.g., Wang & Xie, 2010; Zhang et al., 2016). No literatures investigate intra-industry information diffusion in China stock market. Based on the main intra-industry analyses, the study fills the gap.

Fourth, the issues surrounding intra-industry information diffusion have not been resolutely specified in previous studies, especially in emerging markets. The study focuses on China stock market, which is the biggest emerging market. Research on China stock market is a significant reference for investigation about other emerging markets.

1.6 The Organization of the Study

Chapter one introduces the research background, motivation, statement of the problem, research questions, research objectives and significance and contributions of study. Chapter Two describes the overview of China stock market. Chapter Three summarizes the related literatures and researches. Chapter Three also explains the framework of the study and relevant hypotheses that are generated to focus on the research questions and achieve the objectives of the study. Chapter Four discusses the methodology and econometric techniques that will be used, including various kinds of required data and sources. Chapter Five displays the empirical results. Chapter Six is the discussions and conclusions of the study.

CHAPTER 2

CHINA STOCK MARKET

2.1 Introduction

Since the reform and opening up in 1978, China has experienced a fast transformation from planned economy to market economy at the national level. Over the past three decades, China has gone through impressive economic growth and turns into the second largest economy in the world. China also became a member of the World Trade Organization (WTO) and was recognized as one of the BRICs by international investment banks (Goldman Sachs) in 2001. Due to fast economic development and enormous growth opportunities in China, as an indispensable part of the Chinese economy, China stock market increasingly attracts domestic and foreign investors' attention.

As an emerging market, China stock market owns the second largest trading volume and the second largest market capitalization, which market capitalization is \$ 6.4 trillion in 2014, only after the U.S. market. China stock market increasingly attracts attention from scholars and investors around the world, by reason of China's fast economic development and huge growth opportunities. On the other hand, some unique characteristics of China stock market also attract a considerable amount of investment interest and academic attention around the world. Therefore, China stock market becomes one of most active markets based on the number of listed companies, the total trading volume, the market capitalization, participation of foreign investors, and unique categorization of stocks and so on.

This chapter will introduce the fundamental state of China stock market. The arrangements of this chapter present as following: Section 2.2 shows the two stock exchanges in China stock market. Section 2.3 argues the classification of stocks in the China stock market. Section 2.4 discusses the market participants in China stock market. The unique microstructures in China stock market are introduced in section 2.5. Section 2.6 describes police reform in China stock market. Section 2.7 is the summary of this chapter.

2.2 The Stock Exchanges in China

China stock market has a unique market structure with two national exchanges: Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE). Shanghai Stock Exchange set up in December 1990, while Shenzhen Stock Exchange established in April 1991. China Securities Regulatory Commission (CSRC) is their direct administrative authority. The two stock exchanges provide a powerful trading platform for a variety of financial instruments such as Class A-shares, Class B-shares, closed-end funds, treasury bonds, futures and derivatives etc. Comparing the two stock exchanges of the China stock market, the difference in terms of geographical location is prominent as the most obvious distinction. Shanghai Stock Exchange is housed in Shanghai, which is one of the most affluent coastal cities in eastern China, well-known for its economic importance in China. Whereas Shenzhen Stock Exchange is located in Shenzhen, which is a Special Economic Zone that is aimed at smooth the progress of the development of Chinese open-market economic policy.

Shanghai Stock Exchange is relatively larger. Not a few listed companies with very large market capitalization appear in SHSE. Therefore, SHSE possesses greater total market capitalization. SZSE is relatively smaller, but the number of listed companies is far greater than SHSE. However, because most of listed companies in SZSE belong to small firms, SZSE has lesser market capitalization, not less than one third of SHSE. With the rapid development of China stock market, the market capitalization and share accounts in China increase amazingly. At the end of 2014, there were 2613 shares in China stock market, including 936 shares on SHSE and 1677 shares on SZSE, respectively. Total market capitalization of China stock market reached to \$ 6.4 trillion in 2014. Meanwhile, there were 184.01 million share transaction accounts at the end of 2014 (China Securities Registration and Settlement Statistical Yearbook 2014).

2.3 The Classification of Stocks in China Stock Market

The different classifications of stocks in China stock market are stated in the following sections.

2.3.1 The Tradable and Non-tradable Stocks

In order to call for simplification of IPO issuance system, starting from the year 2000, according to the competitiveness of the firms and the macroeconomic conditions, the China Securities Regulatory Commission (CSRC) modifies the IPO issuance procedure into a more market-driven system. Based on the tradability, the stocks of